FENOMENA Journal of the Social Sciences e-ISSN: 2656-7369 | p-ISSN: 1412-5439

Fenomena: Journal of the Social Sciences
Vol. 25 No. 1 (2026) : 13-26
Available online at https://fenomena.uinkhas.ac.id/index.php/fenomena/

Embedding Local Wisdom in Digital Formative Assessment: Students' Experiences with Wayground in Indonesian Elementary Schools

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DOI: https://doi.org/10.35719/fenomena.v25i1.628
Received: January 3, 2026 | Revised: March 20, 2026 | Accepted: March 30, 2026 | Published: April 21, 2026

Abstract:

The growing use of digital formative assessment often overlooks cultural contexts, particularly in multicultural nations like Indonesia. Anchored in culturally responsive pedagogy, this study addresses the gap between global digital assessment tools and locally relevant educational practices. This study aims to examine students' experiences of integrating local wisdom into digital formative assessment through Wayground in Indonesian elementary schools. Using a qualitative phenomenological approach, data were gathered via semi-structured interviews and classroom observations with students who consistently used Wayground for formative assessment activities integrating local wisdom. The data were thematically analyzed. Findings indicate that incorporating local wisdom promotes meaningful learning by linking academic content to students' daily experiences. Students reported heightened engagement and motivation, diminished assessment anxiety, and more favorable emotional responses when cultural contexts were recognizable. Culturally contextualized feedback supported reflection and deeper learning. Furthermore, integrating local wisdom strengthened identity affirmation and cultural pride, demonstrating that digital assessment can promote character development alongside cognitive growth. This study concludes that culturally integrated digital formative assessment enhances learning, engagement, and identity development. It is recommended that educators incorporate local wisdom into digital assessment design, that policymakers align digital assessment initiatives with cultural preservation, and that future research employ mixed-methods designs across diverse contexts.

Keywords: *Cultural Identity, Socio-Cultural Education, Digital Pedagogy, Formative Assessment, Wayground*

Abstrak:

Penerapan asesmen formatif digital yang semakin berkembang sering mengabaikan konteks budaya, khususnya di negara multikultural seperti Indonesia. Berlandaskan pedagogi responsif budaya, penelitian ini mengatasi kesenjangan antara alat asesmen digital global dan praktik pendidikan yang relevan secara lokal. Penelitian ini bertujuan mengkaji pengalaman siswa dalam mengintegrasikan kearifan lokal ke dalam asesmen formatif digital melalui Wayground di sekolah dasar Indonesia. Menggunakan pendekatan kualitatif fenomenologis, data dikumpulkan melalui wawancara semi-terstruktur dan observasi kelas terhadap siswa yang rutin menggunakan Wayground dalam asesmen formatif yang memuat kearifan lokal. Data dianalisis secara tematik. Hasil penelitian menunjukkan bahwa integrasi kearifan lokal mendorong pembelajaran bermakna dengan mengaitkan materi akademik dengan pengalaman sehari-hari siswa. Siswa menunjukkan peningkatan keterlibatan dan motivasi, penurunan kecemasan, serta respons emosional positif ketika konteks budaya familiar. Umpan balik yang dikontekstualisasikan secara budaya mendukung refleksi dan pembelajaran mendalam. Selain itu, integrasi kearifan lokal memperkuat identitas dan kebanggaan budaya siswa. Penelitian ini menyimpulkan bahwa asesmen digital terintegrasi budaya meningkatkan pembelajaran, keterlibatan, dan pengembangan identitas.

Direkomendasikan agar pendidik mengintegrasikan kearifan lokal dalam desain asesmen digital, pembuat kebijakan menyelaraskan asesmen digital dengan pelestarian budaya, dan penelitian selanjutnya menggunakan metode campuran di berbagai konteks.
Kata Kunci: *Identitas Budaya, Pendidikan Sosio-Budaya, Pedagogi Digital, Penilaian Formatif, Wayground*

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How to cite:	Berliani, N. W. B., Widiastuti, I. A. M. S., Pramerta, I. G. P. A., & Mantra, I. B. N. (2026). Embedding Local Wisdom in Digital Formative Assessment: Students' Experiences with Wayground in Indonesian Elementary Schools. Fenomena, 25(1), 1–12. https://doi.org/10.35719/fenomena.v25i1.628
Publisher:	Centre for Research and Community Service (LP2M), UIN Kiai Haji Achmad Siddiq Jember

Introduction

The rapid advancement of digital technologies has profoundly transformed educational methodologies worldwide, particularly in assessment. In recent decades, assessment has transitioned from a predominantly summative, examination-focused model to more formative, learner-centered strategies that prioritize feedback, reflection, and ongoing improvement (Grevatt, 2018). Digital formative assessment platforms have emerged as potent tools that facilitate this transition by providing real-time feedback, interactive tasks, data-driven insights, and adaptable assessment frameworks (Okafor, 2025). However, many digital assessment platforms are built on prevailing pedagogical frameworks and global standards, which may overlook local cultural values, traditions, and epistemologies (Branch, 2018). The relevance and efficacy of formative assessment procedures may be diminished when digital assessment technologies fail to accurately reflect students' socio-cultural environment. The ability of globally developed digital assessment systems to enable culturally responsive, contextually meaningful learning settings is thus called into question by the growing reliance on these platforms. Therefore, investigating how local wisdom can be integrated into digital formative assessment is not merely a technical concern but a crucial social and educational imperative.

Academics and policymakers increasingly assert that education must not only cultivate cognitive abilities but also foster learners' cultural identity, ethical values, and social responsibility (Sarifah et al., 2025). Local wisdom, encompassing indigenous knowledge, cultural traditions, ethical principles, and community-based practices, is widely recognized as a vital foundation for meaningful learning (Rahmawati et al., 2024). As a multicultural nation comprising numerous ethnic groups, languages, and traditions, Indonesia's educational framework is tasked with preserving cultural heritage while equipping students for engagement in a globalized, digital environment (Susar et al., 2025). National educational policies prioritize character education, cultural values, and the cultivation of students' moral and social competencies alongside academic success (Sakban & Sundawa, 2023). However, previous studies concerning digital formative assessment have primarily concentrated on technical efficacy, usability, and educational outcomes (Rotar, 2025). Additional studies have scrutinized educators' preparedness, obstacles, and methodologies in implementing digital formative assessment (Kaya-Capocci et al., 2022). Little research

has explicitly examined the integration of cultural dimensions as a central component of digital formative assessment design, rather than treating them as secondary or implicit factors (Boer et al., 2018). Furthermore, few studies have examined how digital formative assessment can be meaningfully integrated with indigenous knowledge in Indonesian classrooms (Saky et al., 2025). This indicates a significant gap in understanding how such integration can be designed and experienced, particularly from students' perspectives as key participants in the educational process.

To address these gaps, this study was conducted thoroughly in elementary schools in Indonesia. This study aims to investigate students' experiences of incorporating local wisdom into digital formative assessment using Wayground in Indonesian schools. By emphasizing learners' perspectives, the research seeks to analyze the perception of culturally embedded assessment tasks, their impact on student engagement and comprehension, and their influence on the overall assessment experience in digital learning environments. The objective is to explore how students in Indonesian schools experience the integration of local wisdom into Wayground-based digital formative assessment, thereby advancing culturally responsive and contextually relevant digital assessment practices.

This research makes several significant contributions to theory, practice, and policy. Theoretically, it extends constructivist and culturally responsive pedagogical frameworks by demonstrating that digital formative assessment can serve as a site for culturally sustained learning and identity affirmation, bridging technology, pedagogy, and sociocultural context. In practice, the findings provide empirical evidence for educators to design culturally embedded assessment tasks and feedback that deliberately integrate local cultural contexts and values (Taylor & Nolen, 2022). For policymakers and school administrators, this study stresses the importance of aligning digital assessment initiatives with cultural and character education objectives through curriculum guidelines and professional development (Brown & Crippen, 2016). Methodologically, the research provides a replicable phenomenological model for investigating students' lived experiences in culturally diverse digital learning environments (Ary et al., 2010). Ultimately, this study contributes to advancing culturally responsive and contextually relevant digital assessment practices in Indonesia and beyond.

Method

This study employed a qualitative research design with a phenomenological approach to investigate students' lived experiences of digital formative assessment using the Wayground platform. A qualitative methodology was deemed suitable, as the research aimed to gain a profound understanding of students' perceptions, meanings, and interpretations, rather than quantifying predetermined variables (Ary et al., 2010). The phenomenological perspective enabled the researchers to focus on how students experienced and understood culturally embedded assessment activities within their authentic learning environments.

The study was conducted in specific Indonesian elementary schools that had incorporated Wayground as a digital formative assessment tool within their standard

classroom practices. The research was conducted over three months, from October 2025 to January 2026, allowing sufficient time to observe the implementation of digital formative assessment in regular classroom activities. Participants were intentionally selected to ensure direct experience with Wayground in learning activities that incorporated aspects of local wisdom, such as cultural values, traditions, or community contexts. The participant group comprised students from various grade levels to obtain a range of perspectives. Data collection was carried out in several stages. First, preliminary classroom observations were conducted to understand the learning context and the integration of the Wayground platform. Second, a series of classroom observation sessions was conducted during digital formative assessment activities using Wayground. A total of six observation sessions were carried out across different classes to capture students' interactions and engagement with the platform. Third, semi-structured interviews were conducted with selected students after the observation sessions to explore their experiences and perceptions in greater depth. Data were gathered through comprehensive semi-structured interviews and classroom observations, enabling researchers to investigate both students' verbal reflections and their actual participation during assessment activities.

The data analysis employed a thematic analysis methodology. Interview transcripts and observation notes underwent an iterative process that included data familiarisation, initial coding, theme development, and refinement (Morgan & Nica, 2020). The researchers discerned recurring patterns concerning students' perceptions of cultural relevance, engagement, feedback, and the significance of learning within the digital formative assessment framework. To bolster the credibility of the findings, data triangulation was utilized by juxtaposing interview data with observational evidence, and member checking was performed by presenting preliminary interpretations to participants for validation. Ethical considerations were meticulously addressed during the research process. Informed consent was obtained from all participants and relevant school authorities prior to data collection (Habsi, 2024). Participants were guaranteed confidentiality and anonymity, with pseudonyms employed in all research documentation. Participation was voluntary, and students were informed of their right to withdraw from the study at any time without facing academic repercussions.

Results and Discussion

Results

1. Cultural Relevance and Understanding

This section presents the results of the study on students' experiences with digital formative assessment using Wayground, particularly when local knowledge is deliberately incorporated into the assessment content and feedback. The findings of this study are organized by the types of data gathered, specifically interview transcripts and classroom observation notes. Each data source is initially summarised in tables, followed by detailed explanatory paragraphs. This framework facilitates a clear presentation of evidence while preserving analytical rigor and coherence. The analysis of the interview transcripts identified four predominant themes that

encapsulate students' experiences with Wayground-based digital formative assessment, including local knowledge. These themes and corresponding extracts are summarised in Table 1.

Table 1
Themes Identified from Student Interview Transcripts

Theme	Key Findings	Sample of Interview Excerpts
Cultural relevance and understanding	Local circumstances facilitated students' understanding of assessment questions more effectively.	*"Upon encountering enquiries on our local customs, I promptly comprehended the subject matter being addressed."* (S4) "*I could grasp the questions right away when they discussed local stories or customs in our village. It didn't feel like anything from another nation; rather, it felt more like my life."* (S1) "*Normally, I have to read the question several times, but I grasp it more quickly when it incorporates examples from our community.*" (S3) "*I was able to concentrate on answering the questions rather than speculating about their meaning because they were about activities we do on a daily basis.*" (S6)
Engagement and motivation	Familiar cultural material heightened curiosity and readiness to engage.	*"The enquiries are more engaging due to their focus on our culture."* (S2) "*Unlike during testing, I didn't feel anxious. Because I was familiar with the circumstances, the queries felt pleasant."* S5) *"Because I was familiar with the examples, I felt more comfortable responding. I didn't fear making errors."* (S8)
Interpretation of feedback	Feedback associated with local values prompted contemplation.	*"The reaction evoked counsel from home, beyond mere notions of right or wrong."* (S1) "*I thought more about my response, not just whether it was right or wrong, when the feedback mentioned values we learn at home, like cooperation or respect.*" (S8) *"It was more like a teacher's suggestion than a caution. I therefore decided to give it another go and get better."* S7) "*The feedback helped me understand what I should change, even when my answer was incorrect.*" (S9)
Identity affirmation	Cultural representation cultivated pride and self-	*"I had pride due to the inclusion of our culture in the enquiries".* (S3) *"The fact that the questions referenced our culture made me feel proud. It demonstrated the significance*

	identification.	*of what we have here*." S10) "*Digital learning typically discusses other nations. It mentioned us this time." (S1)* "*A few of the questions got me thinking about protecting the environment and helping others*." (S6)

Note. The interview data indicate that when local wisdom was incorporated into the evaluation's content and comments, students perceived Wayground-based formative assessment as more significant, interesting, and identity-affirming.

Interview data revealed that students regarded culturally embedded assessment tasks as more significant than generic digital quizzes. Overall, the data show that most students were able to interpret questions more quickly when the assessment content reflected familiar cultural practices and community experiences. Numerous participants articulated that local wisdom offered familiar reference points, facilitating the interpretation of questions and the application of their knowledge. This familiarity helped diminish confusion and foster deeper cognitive engagement. Instead of grappling with abstract or unfamiliar scenarios, students concentrated more on the essence of the learning task itself.

Students indicated that Wayground's engagement increased with the incorporation of cultural elements. These findings indicate a pattern in which culturally relevant assessment content stimulated curiosity and reduced students' hesitation to participate in digital assessment activities. While the platform's interactive features were inherently appealing, adding cultural relevance added a personal element that fostered active participation. Students expressed heightened confidence and reduced anxiety, as the content aligned with their daily experiences. This emotional reassurance seemed to enhance their readiness to engage and embrace learning challenges.

2. Engagement and Motivation

Interview responses underscored the significance of culturally contextualized feedback in influencing students' learning experiences. Feedback that integrated local values, such as collaboration, respect, or accountability, was regarded as supportive and constructive. Students characterized this feedback as guidance rather than criticism, facilitating their reflection on errors and contemplation of improvement strategies. This finding indicates that culturally responsive feedback can enhance the formative role of digital assessment. Interviews revealed that incorporating local wisdom facilitated identity affirmation. Most participants expressed pride when their cultural traditions appeared within assessment tasks, suggesting that cultural representation strengthened students' sense of belonging in the learning environment. Students perceived their cultural heritage as acknowledged and esteemed within a digital learning context frequently linked to global or external influences. This acknowledgment fostered pride and highlighted the importance of local culture in formal education.

Classroom observations provided additional insights into student interactions with Wayground during culturally integrated formative assessment activities. The key

patterns observed are summarized in Table 2.

Table 2

Key Findings from Classroom Observation Notes

Category	Key Observation findings	Points of Finding
Student participation	Elevated response rates; students responded to enquiries expeditiously.	Familiarity with culture enhanced confidence.
Emotional responses	Smiling, mirth, and a relaxed posture	Diminished anxiety and constructive engagement
Peer interaction	Discreet discussions pertaining to local contexts	Mutual cultural comprehension
Post-assessment behavior	Ongoing discussion of the values within the concerns	Integration of local wisdom

Note. Classroom observations revealed that culturally embedded digital formative assessment encouraged high levels of student participation, positive emotional responses, teamwork, and meaningful assessment.

Observational data indicated that students exhibited significant engagement during Wayground activities that incorporated local wisdom. Rather than merely confirming the observations presented in Table 2, these findings suggest that cultural familiarity functioned as a catalyst for active participation and confidence during digital assessment tasks. The majority of students promptly responded to the assessment items, demonstrating confidence and a clear understanding of the task. In contrast to sessions featuring more generic content, students rarely requested clarification of question meanings, suggesting that the cultural context was readily accessible to them.

The emotional responses observed during the activities corroborated the interview findings. Most students exhibited relaxation and enthusiasm, frequently smiling or responding positively upon recognizing familiar cultural references. This favorable emotional atmosphere fostered a supportive assessment environment, crucial for effective formative assessment.

Peer interaction was significant during the observation sessions. Several students intermittently exchanged shared brief remarks about local traditions or values referenced in the questions, indicating a mutual understanding of the cultural context. In certain instances, discussions persisted beyond the conclusion of the assessment activity, especially when questions pertained to moral or social values grounded in local wisdom. Classroom observations corroborated the interview results by demonstrating how culturally ingrained digital formative assessment affected students' behavior, emotions, and relationships in authentic learning environments.

Picture 1

Semi-Structured Student Interviews in a Comfortable and Nurturing Educational Setting



Note. Author's field documentation (2025). Displayed with Participant's Permission.

Picture 1 provides visual evidence of the semi-structured interview process conducted during the study and serves as supporting field documentation rather than merely illustrative material. The photograph captures the physical layout of the interview setting, the informal interaction between researchers and students, and the supportive environment that encouraged participants to share their experiences. Visual documentation strengthens methodological transparency by illustrating how data collection was implemented in practice. The image, therefore, serves as supplementary research evidence corroborating the qualitative description of the interview process and the relaxed atmosphere that facilitated open student responses.

The interview sessions were conducted in a semi-structured manner in a calm and positive environment, as evidenced by the photographic record. The researchers and students engaged in a congenial and informal manner, fostering mutual trust and open communication. Students demonstrated ease in articulating their views and experiences, responding to the interview questions spontaneously and without indications of stress or nervousness. The interview's conversational style facilitated flexibility for follow-up inquiries while preserving focus on the research aims. This encouraging and polite engagement cultivated a constructive interview atmosphere, allowing students to convey profound and genuine thoughts regarding their experiences with culturally integrated digital formative assessment.

Overall, the data show that integrating local wisdom into Wayground-based digital formative assessment consistently enhanced students' learning experiences across cognitive, emotional, and social dimensions. The majority of students demonstrated stronger comprehension of assessment questions when they linked them to familiar cultural contexts. These findings indicate a pattern in which culturally grounded assessment tasks increased engagement, reduced anxiety, and encouraged collaborative interaction among students. In addition, most participants interpreted culturally framed feedback as supportive guidance rather than criticism, thereby strengthening reflection and the willingness to improve. Collectively, the interview and observation data suggest that culturally embedded digital formative assessment contributes not only to academic understanding but also to identity affirmation and value internalization among students.

Discussion

This study's findings demonstrate that incorporating local wisdom into digital formative assessment through Wayground has a significant impact on students' learning experiences in Indonesian educational settings. Overall, the results reveal a consistent pattern in which cultural relevance enhances comprehension, engagement, emotional comfort, and identity affirmation during digital assessment activities (Lund, 1997; Starkey & Yates, 2022). By analyzing students' perceptions alongside classroom observations, this research substantiates that culturally responsive digital assessment practices can improve cognitive engagement and affective, social, and identity-related aspects of learning (Diana et al., 2025; Adsanatham, 2012). This discussion contextualizes the findings within the framework of existing international and local literature and advocates for the pedagogical and theoretical importance of integrating local wisdom into digital formative assessment.

The most significant findings of this study are the role of cultural relevance in supporting meaningful learning. Students reported that assessment tasks grounded in familiar local contexts, such as community traditions, social practices, or moral values, were easier to understand and more meaningful than generic digital assessment items (Taylor & Nolen, 2022). From a constructivist perspective, this finding is unsurprising yet underemphasized in the digital assessment literature. Constructivist learning theory posits that learners actively construct knowledge by integrating new information with prior knowledge and lived experience (Al Abri et al., 2024). When assessment contexts align with students' cultural experiences, they reduce cognitive distance and enable learners to focus on higher-order thinking rather than decoding unfamiliar scenarios. This study thus extends constructivist principles into the domain of digital formative assessment, arguing that cultural relevance functions as a cognitive scaffold that supports comprehension and sense-making.

The heightened engagement and motivation observed among students further substantiates the assertion that cultural responsiveness is pivotal to effective digital formative assessment. The observed reduction in assessment anxiety in this study is significant. Assessment anxiety is a recognized impediment to learning, often intensified by unfamiliar or high-stakes assessment formats (Kaufeldt, 2022). Students reporting increased relaxation when engaging with culturally familiar content indicates that local wisdom can serve as an emotional buffer in digital assessment contexts. Conversely, culturally grounded assessments seem to foster a psychologically safe environment where students are more inclined to participate and learn from feedback (Wake et al., 2024). Students found feedback that invoked local values, such as cooperation, respect, and responsibility, more supportive and meaningful than purely technical feedback. This study posits that cultural framing enhances these functions by aligning feedback with familiar moral and social narratives. Consequently, rather than perceiving feedback as impersonal or mechanical, students interpreted it as guidance congruent with advice from teachers, parents, or community members.

The wisdom gained from this research is twofold. First, digital formative assessment is not culturally neutral; its efficacy is profoundly influenced by its

alignment with learners' sociocultural backgrounds. The integration of local wisdom transforms Wayground from a mere technological tool into a culturally mediated learning environment that promotes both cognitive development and character education (Ali et al., 2023; Wajdi et al., 2024). Second, culturally embedded digital assessment tasks not only enhance academic comprehension but also serve as mechanisms for identity affirmation, value internalization, and emotional reassurance. Students expressed pride when their cultural heritage was acknowledged within a digital learning context frequently linked to global or external influences (Al-Hail et al., 2024; Hidayati & Afifah, 2022). This acknowledgment signals to students that their cultural backgrounds are valid sources of knowledge rather than being marginalized or subordinate to globalized content. Assessment, therefore, conveys educational values beyond mere knowledge measurement. Including local wisdom in assessment communicates to students that what they learn at home, in their communities, and through their traditions matters. This wisdom challenges the implicit dichotomy between local wisdom and digital methodologies (Baruwa, 2024; Jusriadi et al., 2025), demonstrating that technology and cultural preservation can coexist synergistically rather than antagonistically.

The study emphasizes the significance of digital formative assessment for reinforcing identity and internalizing values, as well as for learning and motivation. Students' expressions of pride and acknowledgment when their local culture was incorporated into Wayground activities underscore the symbolic influence of assessment practices (Herzog-Punzenberger et al., 2020). Assessment conveys educational values. Including local wisdom in assessment indicates that students' cultural backgrounds are valid sources of knowledge, rather than marginal or subordinate to globalized content (Grigorenko, 2009) . This finding aligns with culturally sustaining pedagogy, which posits that education should actively preserve and affirm students' cultural identities, rather than assimilating them into prevailing norms.

In the realm of globalization and digitalization, educational systems frequently encounter a conflict between global standards and local values. Digital platforms are often linked to global educational frameworks, potentially sidelining local knowledge systems (Robertson, 2005; Isensee et al., 2024). This study challenges that trend by demonstrating that digital assessment can serve as a locus of cultural sustainability rather than cultural erosion. The findings have significant implications for the implementation of digital assessment in culturally diverse environments (Kirwan, 2019; Roy, 2020) This study suggests that neglecting cultural integration may unintentionally compromise policy objectives related to cultural preservation and moral development. Consequently, professional development for educators should encompass not only technical competencies but also culturally responsive assessment design (Brown & Crippen, 2016). The analysis of the findings illustrates that integrating local wisdom into digital formative assessment via Wayground augments meaningful learning, engagement, feedback interpretation, and identity affirmation among Indonesian students.

Conclusion

This study concludes that incorporating local wisdom into digital formative assessment via Wayground significantly enhances students' learning experiences within Indonesian educational contexts. The findings indicate that culturally responsive digital assessment fosters meaningful learning by linking academic content to students' lived experiences, increasing engagement and motivation, facilitating constructive feedback interpretation, and affirming students' cultural identity and values. By prioritizing students' perspectives, this research underscores that digital formative assessment is not culturally neutral; its efficacy is influenced by its alignment with learners' sociocultural backgrounds. The integration of local wisdom transforms Wayground from a mere technological tool into a culturally mediated learning environment that promotes both cognitive development and character education.

Beyond practical applications, this study makes important conceptual and theoretical contributions. It extends constructivist and culturally responsive pedagogical frameworks by demonstrating that digital formative assessment can serve as a site for culturally sustained learning and identity affirmation, bridging technology, pedagogy, and sociocultural context. The findings offer empirical evidence that culturally embedded digital assessmentsmss are not only tools for measuring knowledge but also mechanicsm for mediating cognitive, social, and affective development, thereby enriching the theoretical understanding of digital formative assessment practices in diverse cultural settings.

Notwithstanding its contributions, this study possesses several shortcomings. The study was conducted in a restricted number of Indonesian schools with a small sample size, limiting generalisability to other educational levels, locations, or cultural contexts. The qualitative design relied on self-reported interviews and classroom observations, which may be influenced by participant bias and by the researcher's interpretation. The focus on a single digital platform, Wayground, constrains the ability to determine whether similar results would emerge with other digital formative assessment tools. Subsequent research should incorporate larger, more heterogeneous samples from diverse regions and educational levels. Future studies should also utilize mixed-methods or longitudinal designs to investigate long-term effects on learning outcomes and character development. Additionally, researchers should evaluate multiple digital assessment platforms to better understand how local wisdom can be systematically integrated into digital formative assessment practices across diverse educational and technological contexts.

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